

FIVE-YEAR REVIEW

DAVIE LANDFILL SITE

BROWARD COUNTY, FLORIDA

PREPARED BY U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION IV

ATLANTA, GEORGIA

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A. Photographs

LIST OF ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
COE	U. S. Army Corps of Engineers
EA	Environmental Assessment
EPA	United States Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FWS	United States Fish and Wildlife Service
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OSWER	Office of Solid Waste and Emergency Response
O&F	Operational and Functional
O&M	Operation and Maintenance
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act

1. BACKGROUND

1.1 Introduction

This report documents a five-year review conducted in September 1993 for the Davie Landfill NPL site, located in Broward County, Florida. The U. S. Environmental Protection Agency's (EPA's) Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-02, provides that a five-year "Policy Review" is to be conducted for a response action at any site at which a remedy was selected prior to the enactment of the Superfund Amendment and Reauthorization Act of 1986 (SARA). Policy five-year reviews are required no less often than each five years after the initiation of the remedial action. The five- year review is intended to evaluate whether the response action remains protective of public health and the environment.

1.2 Site Location and Description

The Davie Landfill is a 210-acre site located at 4001 S.W. 142 Avenue in the Town of Davie, Florida. The landfill is situated between two major drainage canals. The North New River Canal is approximately 3.5 miles north of the landfill and the South New River Canal (C-11) is approximately 0.25 miles south of the landfill. To the east and west of the landfill are north-south drainage ditches that empty into the C-11 Canal. Figure 1 is a site location map of the landfill and the surrounding area.

The 210-acre site is comprised of a closed 68- acre trash landfill, closed 48-acre sanitary landfill, a former 8-acre sludge lagoon, and three onsite borrow pits which are now known as lakes 1, 2, and 3. The site features are shown in Figure 2.

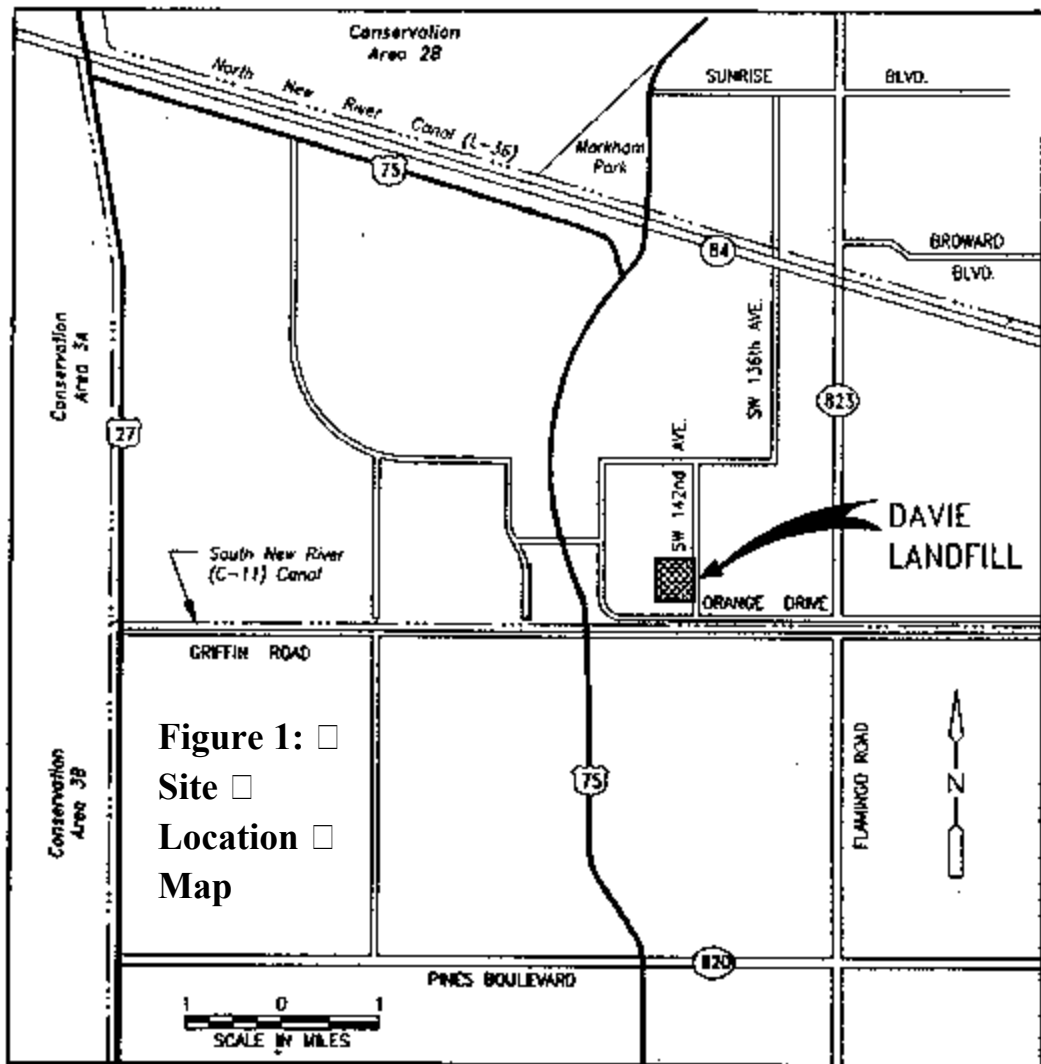
The landfill overlies the Biscayne Aquifer which is approximately 100 feet thick in the vicinity of the landfill. The property surrounding the landfill is located above the floodplain and is not classified as a wetlands area. Camp Seminole of the South Florida Council of the Boy Scouts of America is located north of the landfill. Imagination Farms, a dairy farm, lies along the western, southern, and most of the eastern boundaries of the landfill. A South Florida Water Management District (SFWMD) telemetry tower is located southeast of the site along Boy Scout Road, and adjacent to the C-11 canal which is in the jurisdiction of the Central Broward Drainage District. Just south of the C-11 canal is the single- family residential development, Sunshine Ranches.

1.3 Site History

Operation of the site began in 1964 with the startup of Broward County's garbage incinerator and the opening of the trash landfill to accept trash, construction and demolition debris, and ash from the County's garbage incinerator. In November 1971, the sludge lagoon was created in a natural depression on- site to receive grease trap waste, septic tank wastes, and treated municipal wastewater treatment plant sludges. In 1973, a water quality monitoring program was initiated by Broward County in cooperation with the U. S. Geological Survey (USGS). In June 1975, the County incinerator closed because particulate matter emissions failed to meet new air regulations and the sanitary landfill was opened for garbage only. The sanitary landfill operated from 1975 until December 1987 when the entire site was closed to all incoming waste.

In 1975, the sludge lagoon received an estimated 2,500 tons per month of waste. In 1977, dikes were constructed around two sides of the sludge lagoon to increase the capacity of the lagoon to handle the volume of sludge disposal. Later these dikes were raised to receive increased loads. By 1980, the volume of sludge placed in the lagoon had increased to approximately 7,100 tons per month. In November 1981, concern regarding groundwater contamination from the sludge lagoon resulted in the EPA designating the site as a Hazardous Waste Site under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and prompted Broward County to cease all disposal operations at the lagoon.

In August 1982, EPA sampled the sludge in the lagoon and found high levels of total cyanides and total sulfides. The site was placed on EPA's National Priority List (NPL) in September 1983 due to concerns related to the sludge lagoon. Subsequent sampling performed in 1983 and 1985 showed reduced concentrations of both these elements. However, the sludge lagoon was still considered a major source for potential contamination, and on September 27, 1985, EPA issued a Record of Decision (ROD) regarding remediation of the sludge lagoon at the site.



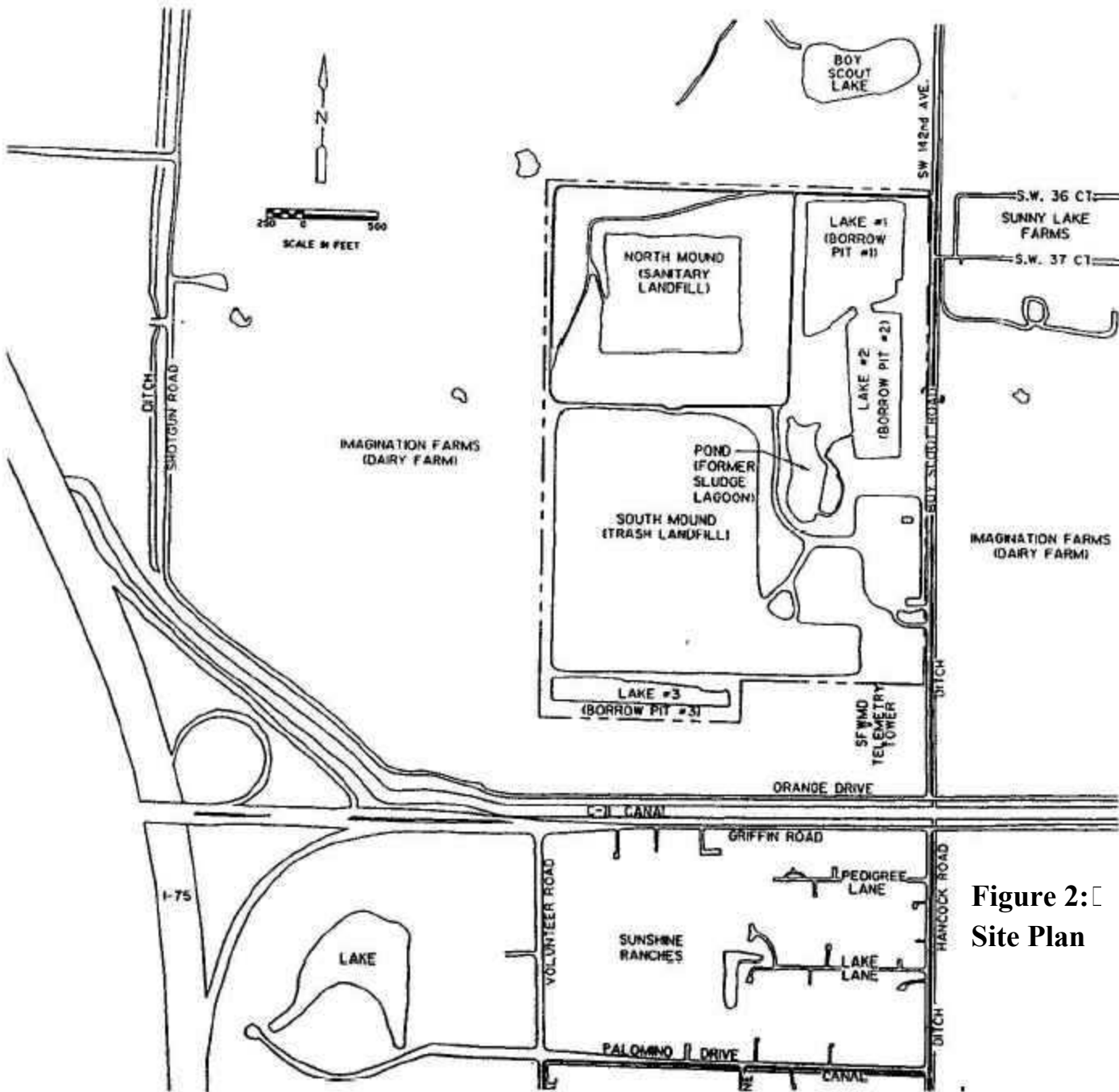


Figure 2: [Site Plan

1.4 Remedial Objectives

In the 1985 source control ROD, the remedy selected for the Davie Landfill sludge lagoon was as follows:

- Dewater and stabilize the sludge lagoon contents and place the stabilized material in sanitary landfill cell number 14.
- Install a cap on cell number 14 that meets the regulatory requirements of 40 CFR 264.310(a).

The decision on additional action that may be necessary to address ground water contamination was postponed until after an evaluation of the effects of the source control remedy and further assessment of data from continued monitoring.

Remedial actions for the sludge lagoon cleanup were preformed in 1989. A remedial investigation to address groundwater contamination is currently underway at the site. A ROD addressing groundwater at the site is anticipated in early 1994.

1.5 ARARs Review

The applicable or relevant and appropriate requirements (ARARs) under which the Davie Landfill source control remedy was designed are summarized below. Additional ARARs may be relevant to the remedy selected in the planned 1994 ROD.

<u>Requirements</u>	<u>Substance</u>
1. Chapter 17- 7 FAC (1985)	Resource Recovery and Management
2. Solid Waste Disposal Act	Landfill Closure
3. Resource Conservation and	Hazardous Landfill Closure Recovery Act - Subtitle C
4. Clean Water Act	Water Quality
5. Safe Drinking Water Act	Drinking Water Quality
6. Clean Air Act	Air Emissions Control
7. National Oil and Hazardous Substances Pollution Contingency Plan (NCP)	Remedy Evaluation/Selection

During a review of these ARARs, EPA did not identify any changes in the standards above which would challenge the protectiveness of the remedy selected.

2. SITE CONDITION

2.1 Summary of Site Visit

On September 21, 1993, Pamela Scully, of the Environmental Protection Agency, and Mary Beth Busutil, of the Broward County Office of Solid Waste Management, met to review site documentation and perform a site visit at the Davie Landfill. The purpose of this site visit was to evaluate components of the remediation with respect to the Consent Decree and Decision Documents for Operable Unit (OU) Number 1 and to review current site closure and monitoring activities.

The following is a summary of EPA's observations made during the site tour with references to photographs which are included as Appendix A of this report. The tour by driving to the top of the trash landfill. The limerock cover was in place on the landfill. Asphalt paving and concrete curbing were complete (Photograph A- 1). Parking areas and trails were tack- coated. Topsoil was placed in some areas and landscaping of the 68 acre landfill was underway (Photograph A-2). From the top of the trash landfill, the sludge lagoon and lakes 1, 2, and 3 (Photograph A-3, A-4, and

A-5) were observed. Several species of water fowl were observed in the sludge lagoon. There was algae on the surface in some areas of the lagoon. Vegetation surrounding the lagoon appeared to be thriving.

Next, the tour proceeded down the access road at the north end of the trash landfill and inspected the enclosed flare system designed to burn landfill gas collected in the sanitary landfill (Photograph A-6). The piping to the flare was not complete at the time of this visit.

The tour proceeded to the top of the sanitary landfill. The limerock cover was in place on most of the sanitary landfill (Photograph A-7), although some areas still required fill (Photograph A-8).

Work on the perimeter fence was progressing very slowly. The fence was in place in most areas, and the automated gate that will serve for the park entrance was complete (Photograph A-9). Access to the site was not strictly controlled; however, there was a county employee stationed near the entrance to the site to keep records of trucks hauling soil for the closure system.

Ms. Scully visited the site again on December 15, 1993. The landscaping at the site entrance and trash landfill were well underway (Photographs A-10). Most of the grading was complete (Photograph A-11), and the enclosed flare was complete but not yet operating (Photograph A-12)

2.2 Summary of Interviews

Mr. Joe Lurix, of the Florida Department of Environmental Protection (FDEP) in West Palm Beach, was contacted on December 14, 1993, concerning closure of the landfill. Mr. Lurix expressed frustration at the progress of the closure at Davie Landfill. Permit/ Certification Number SF06-143540 was issued on May 3, 1988. and expired on May 3, 1993. Broward County applied for an extension of the permit deadline, but as of December 14, 1993, the application was incomplete. The monitoring plan has not been submitted and no new project completion dates have been set.

2.3 Areas of Non-Compliance

The landfill closure was not complete by the time this five- year review was conducted. The sludge lagoon appears to have been restored to a thriving wetland area. The stabilized contents of the sludge lagoon appear to be structurally sound.

The RI/FS for remaining contamination at the site is underway and is expected to be complete in 1994.

3. RECOMMENDATIONS

3.1 Technology Recommendations

Containment remains the most appropriate technology for municipal landfills. No hot spots have been revealed during the landfill closure process or the latest remedial investigation that require removal action. The leachate collection system in the sanitary landfill has operated since 1988. The volume of leachate collected has decreased from 1988 through 1993. The sludge lagoon has been renovated into a nature pond/ wetland area.

The results of the RI indicate low levels of groundwater contamination coming from the sanitary and trash landfills. A ROD is forthcoming in 1994 which will address any further action required at the site. Therefore, no recommendations will be given at this time.

3.2 Statement on Protectiveness

The selected remedy in the source control ROD remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost effective.

Another five-year review should be conducted by March 14, 1999. The review should consist of a visual inspection of the landfill closure to assess the structural integrity of the cover system; a quantitative and qualitative review of leachate from the leachate collection system. a review of groundwater monitoring results since the last review, and a review of ARARs. Interviews with state officials monitoring the facility, as well as, operation and maintenance personal should be performed. Additional sampling should not be required since the data from ground water monitoring and leachate collection should be available during the five- year review.

APPENDIX A

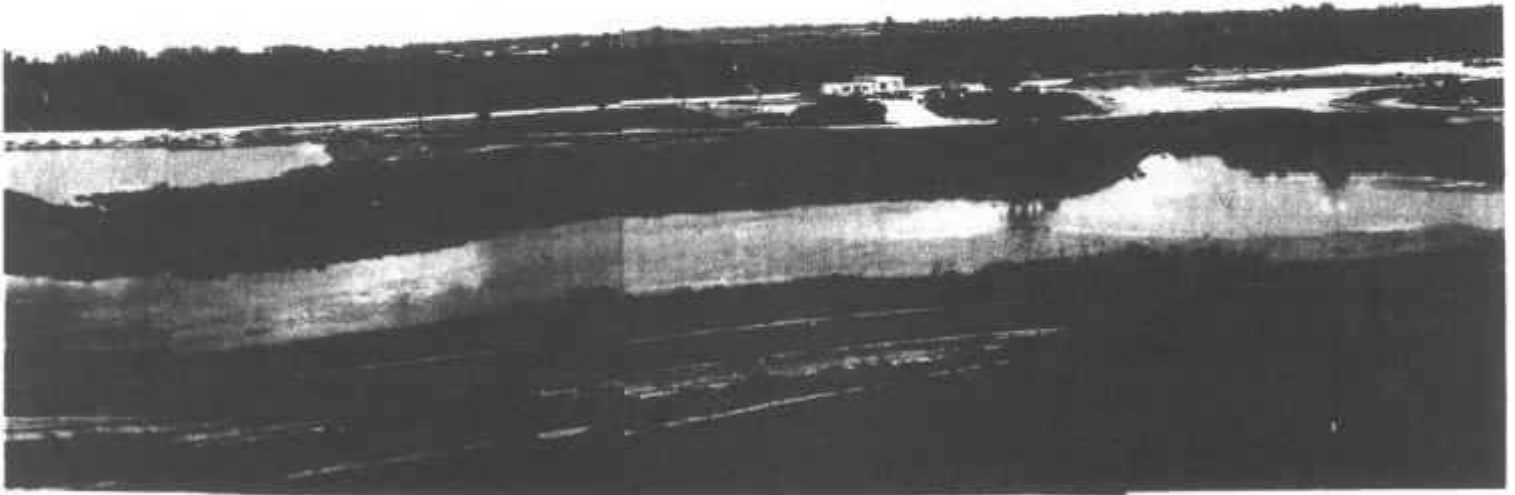
PHOTOGRAPHS



Photograph A-1: Asphalt paving and concrete curbs were in place on the trash landfill during EPA's September 1993 site visit.



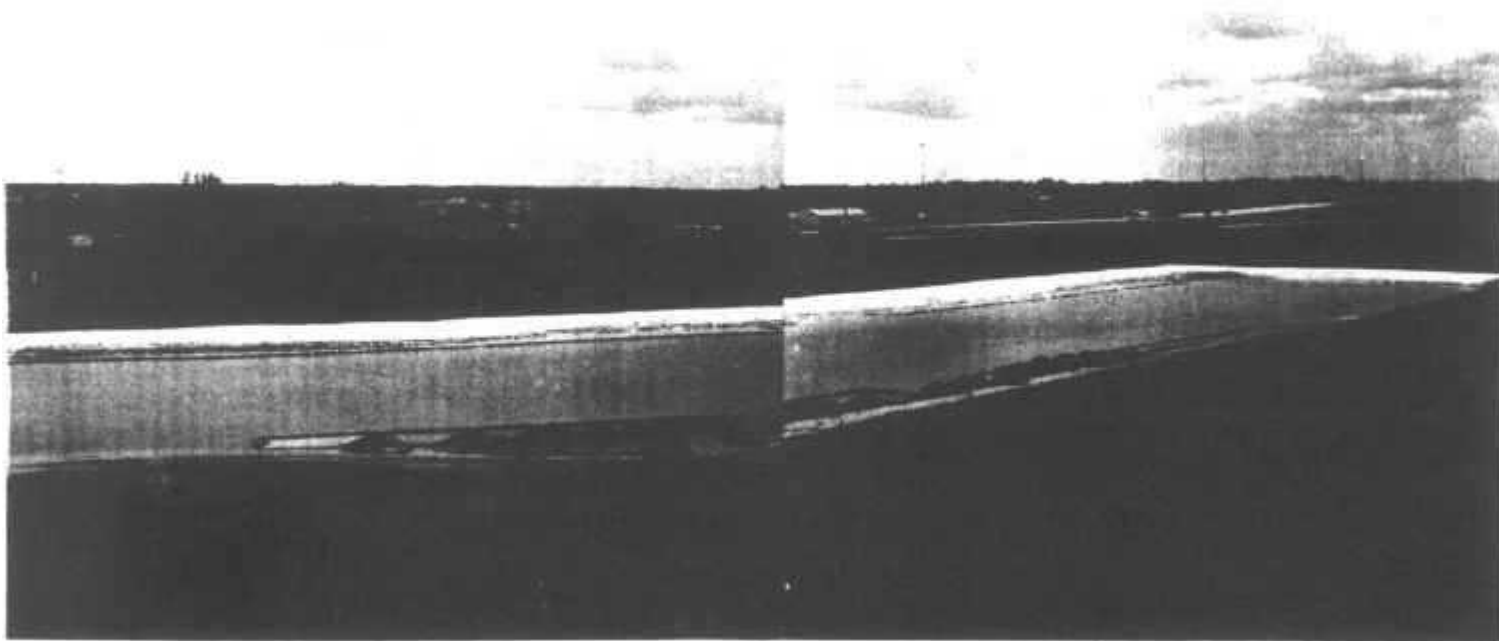
Photograph A-2: Landscaping of the trash landfill was underway (September 1993).



Photograph A-3: Sludge lagoon appeared to be a thriving wetland (September 1993).



Photograph A-4: Lakes 1 and 2 were connected as part of the landfill closure (September 1993).



Photograph A-5: Lake 3 bounds the south west portion of the site (September 1993).



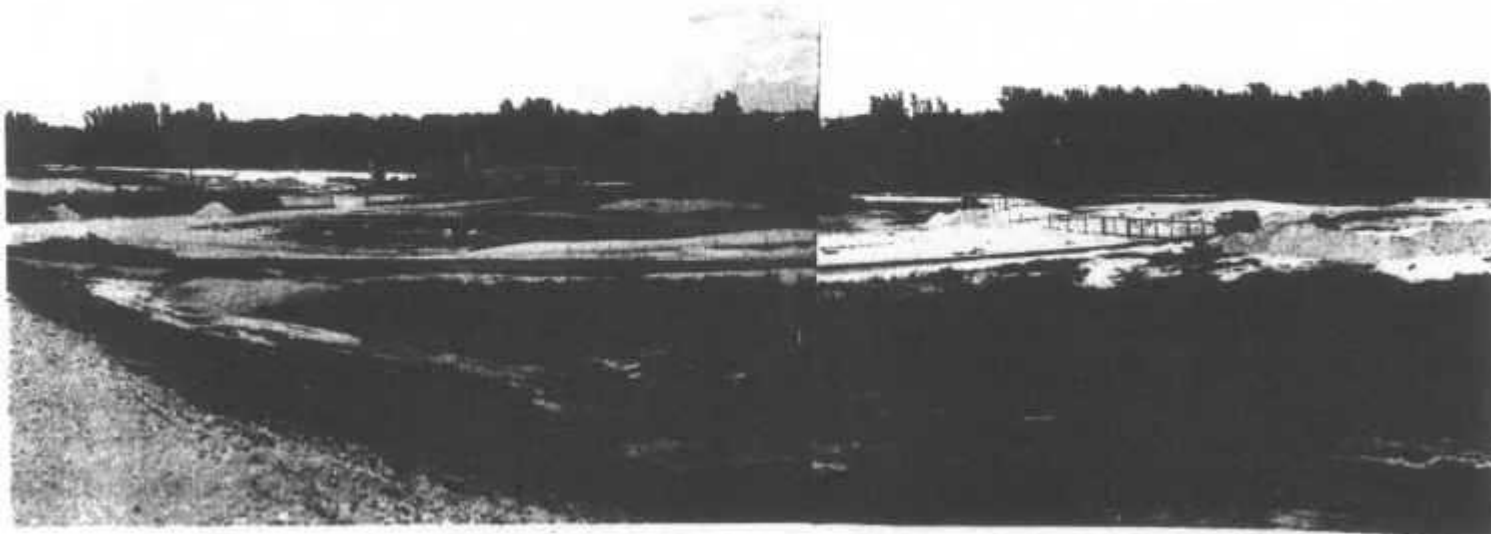
Photograph A-6: Enclosed flare under construction (September 1993).



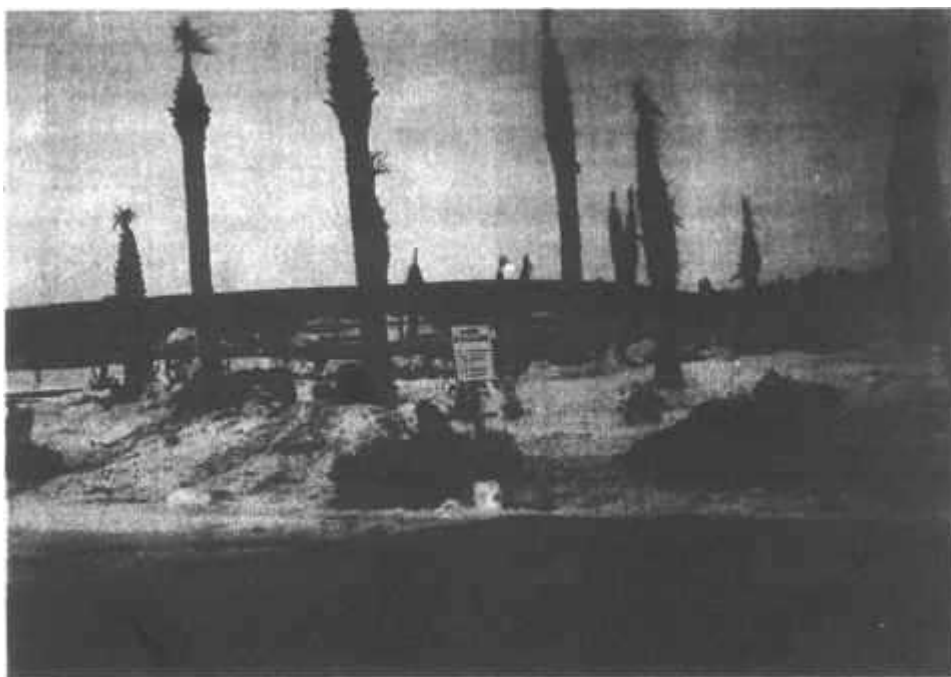
Photograph A-7: Limerock cover on sanitary landfill (September 1993).



Photograph A-8 : Limerock cover had not been placed on this portion of the sanitary landfill (September 1993).



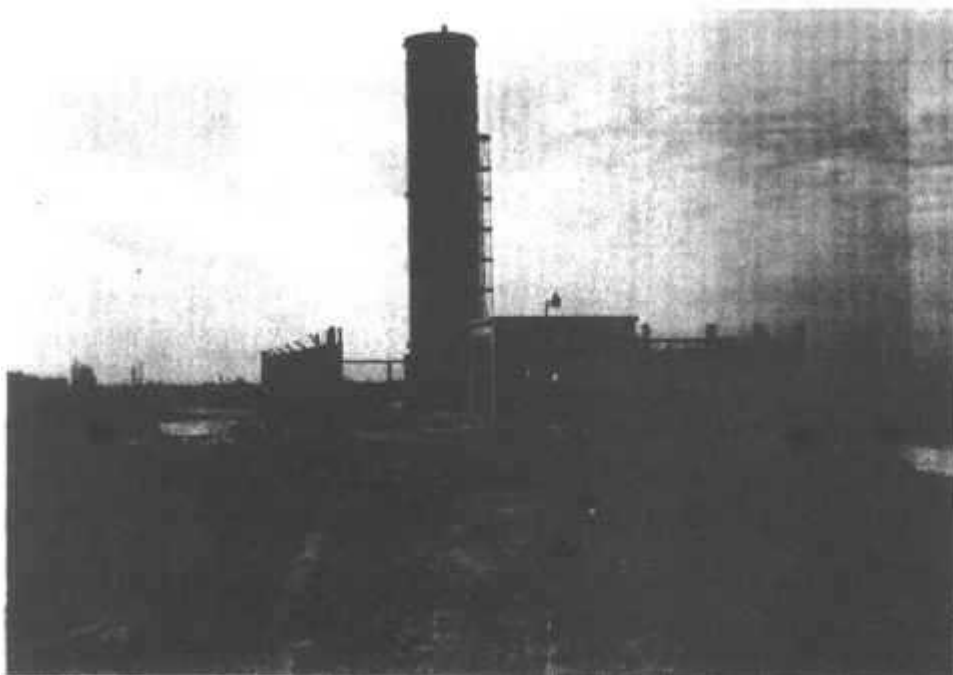
Photograph A-9 : The entrance to the landfill will be controlled by an automated gate, as shown in under construction in this photograph (September 1993).



Photograph A-10 : By December 1993, landscaping at the landfill entrance was underway.



Photograph A-11 : Grading was essentially complete in December 1993.



Photograph A-12 : Enclosed flare construction appeared to be physically complete in December 1993.